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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,722	11/17/2003	Ralph A. Dalla Betta	220772010800	5024
25226	7590	03/07/2006	EXAMINER	
MORRISON & FOERSTER LLP 755 PAGE MILL RD PALO ALTO, CA 94304-1018			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	
DATE MAILED: 03/07/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/715,722	DALLA BETTA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-18,40,42-48 and 66-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-12,14-15,17-18,40,42-47,66-70 is/are rejected.
- 7) ☒ Claim(s) 13,16,48 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/22/2006</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

This office action is in response to the amendment filed December 20, 2005.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

***Claims 1, 3-12, 14-15, 40-47, and 66-70 are rejected under 35 U.S.C. 102 (e) as being anticipated by Hepburn et al. (Hepburn) (Patent Number 6,813,882).***

Regarding claims 1 and 40, Hepburn discloses a device for producing a reducing gas, comprising: an inlet, a fuel injector (29, 30), a catalytic zone (e.g. 10) comprising an oxidation catalyst (e.g. 26, 27) and a reforming catalyst (e.g. 26, 27), and a reservoir (28) comprising a

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fuel, wherein the reservoir is in fluid communication with the fuel injector (29, 30), wherein said fuel injector (29, 30) is configured to inject fuel upstream from the catalytic zone into at least a portion of an oxygen containing gas stream flowing from the inlet to the outlet and through the catalytic zone such that rich and lean zones are formed in said gas stream, and wherein the injected fuel flows through said catalytic zone (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 1, lines 1-36); wherein the fuel injector is configured to inject a sufficient amount of fuel to form a rich zone in the gas stream such that as the rich zone flows through the catalytic zone, a portion of the injected fuel in the rich zone is oxidized on the oxidation catalyst and at least a portion of the remaining fuel in the rich zone is reformed on the reforming catalyst, thereby producing a reducing gas stream (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 4, lines 1-67; col. 5, lines 1-6; Steps 230-290).

Regarding claims 3 and 42, Hepburn further discloses that a reservoir comprising a hydrocarbon fuel, wherein said reservoir is in fluid communication with said fuel injector, and wherein said reducing gas stream comprises H<sub>2</sub> and CO (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 4, lines 1-67; col. 5, lines 1-6).

Regarding claims 4 and 43, Hepburn further discloses that the fuel injector is adapted to introduce the hydrocarbon fuel to an oxygen containing gas stream discontinuously to form alternating rich and lean zones (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claims 5 and 44, Hepburn further discloses that the fuel injector is configured to inject the hydrocarbon fuel to a portion of the oxygen containing gas stream essentially continuously, thereby forming a rich zone in said gas stream flowing through the catalytic zone,

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and wherein the device is configured such that said gas stream flowing through a portion of the catalytic zone and the portion of the catalytic zone through which the rich zone flows varies over time (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claims 6, Hepburn further discloses that the hydrocarbon fuel is selected from the group consisting of gaseous, liquid, oxygenated, nitrogen containing, and sulfur containing hydrocarbons (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claims 7, 66, Hepburn further discloses that the hydrocarbon fuel is selected from the group consisting of gasoline and diesel fuel (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claims 8, Hepburn further discloses that the catalytic zone comprises at least one monolithic structure (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 4, lines 1-67; col. 5, lines 1-6; Steps 230-290).

Regarding claims 9, Hepburn further discloses that the monolithic structure comprises a plurality of channels (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 4, lines 1-67; col. 5, lines 1-6; Steps 230-290).

Regarding claims 10, Hepburn further discloses that the monolithic structure comprises metal (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 4, lines 1-67; col. 5, lines 1-6; Steps 230-290).

Regarding claims 11, Hepburn further discloses that the monolithic structure comprises a ceramic material (e.g. See Figs. 1-6; col. 3, lines 50-67; col. 4, lines 1-67; col. 5, lines 1-6; Steps 230-290).

Regarding claims 12 and 47, Hepburn further discloses that the system configured such that when rich and lean zones of an oxygen containing gas stream flow through the catalytic

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zone, the temperature of the catalytic zone is maintained at about 450 to about 1000 °C (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claim 14, Hepburn further discloses that a heater or heat exchanger upstream from the catalytic zone, wherein said heater or heat exchanger is in gas flow communication with the catalytic zone (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claim 15, Hepburn further discloses a pre-oxidation catalyst downstream from said fuel injector and upstream from said catalytic zone, wherein said pre-oxidation catalyst comprises an oxidation catalyst, wherein said fuel injector is configured to introduce fuel to at least a portion of an oxygen containing gas stream upstream from said pre-oxidation catalyst, such that when said gas stream flows through the pre-oxidation catalyst, at least a portion of the fuel introduced by the fuel injector is oxidized, thereby heating the gas stream (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claim 45, Hepburn further discloses that the lean zones do not comprise fuel (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

Regarding claim 46, Hepburn further discloses that the lean zones comprises fuel at an equivalence ratio less than 1 (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10,

Regarding claims 67-70, Hepburn further discloses that the a controller, wherein the injection of fuel is controlled as a function selected from the group consisting of the flow rate of said oxygen containing gas stream, the oxygen concentration in said oxygen containing gas stream, the desired reductant level at said outlet, or the temperature of said oxygen containing gas stream (e.g. See Figs. 1-6; col. 8, lines 40-67; col. 9, lines 1-67; col. 10, lines 1-40).

***Allowable Subject Matter***

Claims 13, 16-18, and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments filed December 20, 2005 have been fully considered but they are not completely persuasive. ***Claims 1, 3-18, 40, 42-48, and 66-70 are pending.***

Applicant's cooperation in explaining the claims subject matter more specific to overcome the claim objections relating to indefinite claim language is also appreciated. Applicant's cooperation in explaining the claims subject matter more specific to overcome the claim rejection is appreciated.

Applicant's arguments with respect to claims 1, 3-18, 40, 42-48, and 66-70 have been considered but are moot in view of the new ground(s) of rejection as discussed above.

Applicant's amendment (Claims 1, 3-18, 40, 42-48, and 66-70) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the

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date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



BT  
February 28, 2006

Binh Q. Tran  
Patent Examiner  
Art Unit 3748